

**Title: Supplementary Movie 1.**

**Description: Pressure test of the tiny sensor on a fingertip.** A small piece of cotton dropped onto the tiny sensor and its resistance changed immediately to show its sensing ability.

**Title: Supplementary Movie 2.**

**Description: Self-unfolding behaviour of the UHCS-PDMS.** A UHCS-PDMS thin film that has been folded several times was put into a petri dish with deionized water. It shows immediate self-unfolding behaviour in 9 seconds.

**Title: Supplementary Movie 3.**

**Description: Dynamic array test for UHCS-PDMS.** A  $64 \times 64$  passive sensing array on a  $32 \text{ mm} \times 32 \text{ mm}$  film sensor was tested to show its resolution, shape identify and dynamic sensing ability.